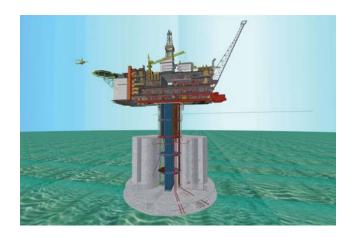
## **Hebron Project Team**



Hebron is a heavy oil field estimated to contain 660-1055 million barrels of recoverable resources. The field was first discovered in 1980, and is located offshore Newfoundland and Labrador in the Jeanne d'Arc Basin 350 kilometres southeast of St. John's, the capital of Newfoundland and Labrador.





The Hebron Project includes offshore surveys, engineering, procurement, fabrication, construction, installation, commissioning, development drilling, production, operations and maintenance and decommissioning of an offshore oil / gas production system and associated facilities.

Hebron is a major project that will deliver significant benefits to Canada, particularly to Newfoundland and Labrador: engineering, fabrication and construction, employment and training of a diverse workforce, research and development opportunities, along with significant royalty and tax revenues.



#### The Hebron co-venturers are:

ExxonMobil Canada Properties	36.0%
Chevron Canada Resources	26.7%
Suncor Energy Inc.	22.7%
Statoil Canada	9.7%
Nalcor Energy	4.9%

ExxonMobil Canada Properties is the operator of the Hebron Project.

For more information, please visit: www.hebronproject.com

## **Combined Experience Means Excellent Deliverables**



construction and marine EXPERIENCE, from many SUCCESSFUL projects, applied RIGHT HERE.



The Hebron Field will be developed using a stand-alone, concrete gravity based structure (GBS) production platform. Kiewit-Kvaerner Contractors (KKC), a 50/50 partnership between Peter Kiewit Infrastructure Co. and Kvaerner, was awarded the contract by ExxonMobil Canada Properties (EMCP) for the Hebron GBS Project.

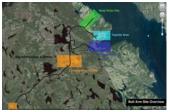
The GBS will consist of a reinforced concrete structure designed to withstand the weight of the topsides, icebergs, and meteorological and oceanographic conditions at the offshore Hebron Project Site. The total platform will be installed in approximately 95 metres water depth at the Grand Banks offshore Newfoundland and Labrador, Canada.

The GBS will be designed to store approximately 1.2 million barrels of crude oil in multiple separate storage compartments.

Peter Kiewit Infrastructure Co. and Kvaerner have a long history of working together, which includes work on the Hibernia GBS Project and White Rose floating production, storage and offloading (FPSO) vessel. With over 125 years of construction experience, Kiewit is one of North America's largest and most respected construction and mining organizations. Kvaerner has completed some 20 GBS projects over the last 40 years, making it the leading GBS contractor worldwide.

#### **Bull Arm Site**









#### Work in Progress





WorleyParsons was awarded the contract for front-end engineering and design work and to provide detailed engineering, procurement and construction of the Hebron topsides platform.

Topsides components include the Utilities & Process Module, Drilling Support Module, Derrick Equipment Set, Living Quarters, Flare Boom, Helideck and Lifeboat Stations.

The topsides components will be installed and integrated on the Bull Arm topsides assembly pier constructed for the Hibernia Project in the 1990's. The final integrated topsides, weighing more than 40,000 tonnes, will then be floated to the deep water site for integration with the gravity based structure.

WorleyParsons, working with Fluor, will provide overall project management of the contract with sub-contracts to be awarded to multiple third parties, with a special emphasis on performing work in Newfoundland and Labrador.



Kiewit-Kvaerner Contractors

www.kkc-gbs.com



### **Worley** Parsons

resources & energy

topsidesproject.worleyparsons.com

# Hebron Drilling and Production Platform



**View Looking Northwest** 



#### **View Looking North**



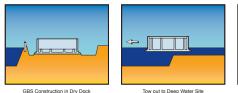
**View From Above** 

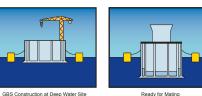
#### topsidesproject.worleyparsons.com

### **Kiewit-Kvaerner Contractors Gravity Based Structure Construction Planning**

### WorleyParsons **Topsides Construction Planning**

#### **GBS Construction Sequence**





GBS Construction in Dry Dock

93 m (Mean Sea level)

120 m

130 m

35 m

40,000 t

3 400 t

5.500 t

400 t

52

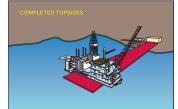
132,000 m3

#### **Overall Hebron Platform Execution Basis**

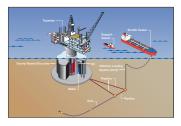
- · GBS construction in Dry Dock- civil and mechanical outfitting (MOF)
- · Tow out and installation at deep water site (DWS)
- · GBS construction at DWS civil and MOF including solid ballast
- · Assembly of Topsides at nearby pier
- · Float over and deck mating at DWS
- · Hook-up and Commissioning Topsides-GBS
- · Tow out and installation at offshore location, including grouting

#### **GBS Key Quantities**

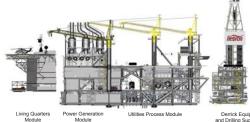
- Water depth
- · Height of GBS · Diameter of GBS Base
- Shaft diameter
- Concrete volume
- · Rebar (density approx. 325 kg/m3)
- · Post tensioning steel
- Steel skirts
- Mechanical Outfitting (Piping systems & Structural steel)
- · Well Slots







#### **Topsides Construction Sequence**



#### **Topsides Platform Execution Basis**

- · Utilities Process Module (UPM) transferred to pier via heavy lift vessel
- · Drill Support Module (DSM) & Drill Equipment Set (DES) installed and integrated onto UPM

Flare Boom

- Living Quarters Module (LQM), Helideck and West Lifeboat Station transferred to barge and installed onto UPM
- · East Lifeboat Station and Flare Boom lifted and installed onto UPM
- · Complete all module integration connections and commissioning
- · Integrated Topsides floated to the Bull Arm deep water site for mating and hook-up with the GBS

#### **Topsides Key Metrics**

- · Length of Topsides
- · Width of Topsides
- · Height of Topsides (excluding derrick)
- · Topsides Weight (estimated)
- · Crude oil production
- · Water production Water injection
- Gas handling
- · Heavy crude (estimated)
- Accommodations
- 215-300 MSCFD API 19° crude Persons On Board (POB) - 220

36.000 - 45.000 t

150-180 kbd

200-350 kbd

270-470 kbd

~ 130 m

~ 64 m

~ 40 m



**Kiewit-Kvaerner Contractors** 

www.kkc-gbs.com



### **WorleyParsons**

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Module

Derrick Equipment Set and Drilling Support Module

## Delivering Extraordinary Safety Performance... Leaving a Lasting Legacy





#### **Kiewit-Kvaerner Contractors**

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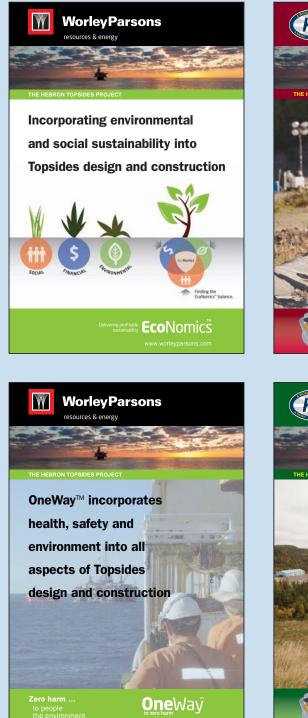


### **Worley Parsons**

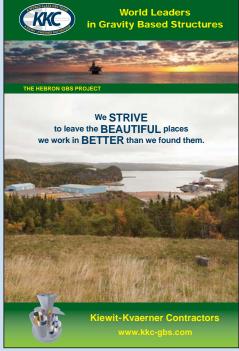
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# Contractors committed to Health, Safety, Environment and Community











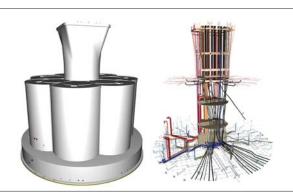
# Hebron Project Milestones



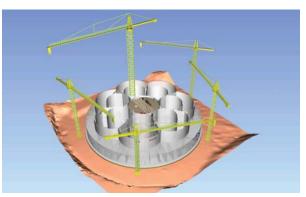
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# World Class GBS Execution

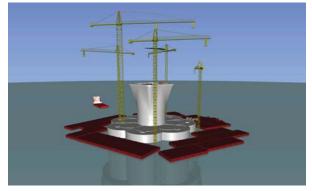
### Engineering, Procurement and Construction of a Gravity Based Structure



**Concrete with Mechanical Outfitting Inside** 



**Construction in Dry Dock** 



**Construction at Deep Water Site** 

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